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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,299

11/16/2006

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EXAMINER

AKRAM, IMRAN

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/566,299	Applicant(s) TAKAGI, YUTO	
	Examiner IMRAN AKRAM	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-16 is/are pending in the application.
- 4a) Of the above claim(s) 15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/27/06, 9/4/09</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 7-14 in the reply filed on 4/13/10 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 15 and 16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected apparatus, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 10 and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 10 recites "wherein said heating in said temperature elevating step is carried out using a heat of oxidation" but depends on claim 8 which recites "wherein said heating in said temperature elevating step is carried out using a heat generated by an electric heater." The claims are conflicting as claimed. The language needs to clarify how these are both possible simultaneously.

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6. Claim 12 recites "wherein said heating in said temperature elevating step is carried out using a heat of combustion" but depends on claim 8 which recites "wherein said heating in said temperature elevating step is carried out using a heat generated by an electric heater." The claims are conflicting as claimed. The language needs to clarify how these are both possible simultaneously.

7. Claim 13 recites "wherein said heating in said temperature elevating step is carried out using a heat of combustion" but depends on claim 9 which recites "wherein said heating in said temperature elevating step is carried out using a heat of oxidation." The claims are conflicting as claimed. The language needs to clarify how these are both possible simultaneously.

8. Claim 14 recites "wherein said heating in said temperature elevating step is carried out using a heat of combustion" but depends on claim 10 which recites "wherein said heating in said temperature elevating step is carried out using a heat of oxidation." The claims are conflicting as claimed. The language needs to clarify how these are both possible simultaneously.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goebel (US 2003/0093950 A1) in view of Borup (US 6,162,558).

12. Regarding claim 7, Goebel discloses a method comprising: a heating step of elevating the temperature of a selective oxidation PrOx **20** (paragraph 31) by opening valve **44** for fuel to be burned in the burner system **24,26** (paragraph 26) and then closing valve **44** and opening valve **46** to allow reformat to flow through the PrOx **20** and have its CO removed with air **92** (paragraph 43). The reformat is produced by the steam reformation of methanol (paragraph 2). Goebel does not disclose running reformat through the PrOx without additional PrOx air since the catalyst of Goebel is activated by temperature alone (paragraph 11), but Goebel does disclose means to do so as described above.

13. Borup—in an invention for a selective oxidation catalyst for the removal of CO from reformat for a fuel cell—discloses an iridium catalyst that removes CO in an oxidation reaction with air that has a broader temperature and pressure range than the catalyst used in Goebel (column 4, lines 37-44 of Borup). Given the necessity for temperature control in the PrOx of Goebel, the catalyst of Borup would provide

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advantages (column 4, lines 45-54 of Borup). The catalyst of Borup is activated by raising its temperature, too, but then passing methanol reformat of standard composition, without additional PrOx air, through the PrOx catalyst for a period of time (column 7, line 62 to column 8, line 3), something which Goebel is capable of. It would have been obvious to one having ordinary skill in the art at the time of invention to replace the PrOx catalyst of Goebel with the catalyst of Borup for less rigid temperature and pressure parameters for the PrOx device and then running reformat through it without additional PrOx air in order to activate it.

14. Regarding claim 8, Goebel discloses that the heating of the PrOx catalyst can be performed by an electric heater (paragraph 11).

15. Regarding claims 9 and 10, Goebel discloses increasing the temperature of the PrOx with the exothermic reaction between the reformat and the air (paragraph 46).

16. Regarding claims 11-14, Goebel discloses that the burner system for heating the PrOx as above comprises a combustion catalyst **26** (paragraph 23).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IMRAN AKRAM whose telephone number is (571)270-3241. The examiner can normally be reached on 10-7 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/I. A./

Examiner, Art Unit 1795

/Alexa D. Neckel/

Supervisory Patent Examiner, Art Unit 1795